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| 10/712,082      | 11/13/2003  | William Van Harlow   | 08575-076001        | 7935             |

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| EXAMINER |
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VEZERIS, JAMES A

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| ART UNIT | PAPER NUMBER |
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4172

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11/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/712,082

Applicant(s)

HARLOW ET AL.

Examiner

James A. Vezeris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/13/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**Detailed Action**

**Specification Objection**

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The examiner feels that simply stating a method for "managing an investment portfolio" is insufficient for an abstract. While the given example, in the abstract, helps clarify what is contained in the disclosure, there should be more detail about how the example is accomplished; since there are innumerable ways to manage a portfolio.

**Claim Rejections- 35 U.S.C. 112 2<sup>nd</sup> Paragraph**

2. Claims 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear if the applicant is trying to claim a physical system or software per se. The examiner notes the claims will be viewed as software modules.

**Claim Rejections- 35 U.S.C. 101**

3. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-14 of this invention are directed to non-statutory subject matter.

Section 2106.02 of the MPEP states-

Claims to processes that do nothing more than solve mathematical problems or manipulate abstract ideas or concepts are complex to analyze and are addressed herein. If the "acts" of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. *Gottschalk v. Benson*, 409 U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972). Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process. In practical terms, claims define nonstatutory processes if they: - consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or - simply manipulate abstract ideas, e.g., a bid (*Schrader*, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (*Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759), without some claimed practical application.

Claims 1-12 deal with the manipulation of data, resulting in more data, which is neither useful nor tangible.

Claims 12-14 are further rejected under 35 U.S.C. 101 for failing to provide a physical system. Since modules can be directed to software per se the claims are non-statutory.

#### **Claim Rejections- 35 U.S.C. 102(e)**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-14 rejected under 35 U.S.C. 102(e) as being unpatentable over “Using Value-at-Risk to Control Risk Taking: How Wrong Can You Be?” by Xiongwei Ju and Neil D. Pearson. (Hereinafter “Risk”)

**Regarding Claim 1:**

Risk teaches a method comprising:

receiving asset classes with corresponding sets of financial data; (See Section I.

First Paragraph)

determining variation information for the sets of financial data; (See Page 8

Paragraph 2)

determining a final set of factors based on the variation information. (See Page 8

Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 2:**

Risk further teaches determining risk associated with a portfolio of one or more assets using information derived from the final set of factors. (See Page 9 First Paragraph)

**Regarding Claim 3:**

Risk further teaches the information derived from the final set of factors comprises risk factor coefficients calculated using a regression based on the final set of factors and historical data for the one or more assets. (See Page 8 Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 4:**

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Risk further teaches determining the final set of factors comprises:

determining an initial set of factors based on the variation information; (See Page 5 Second Paragraph)

determining the final set of factors based on a plurality of principal components associated with the initial set of factors. (See Page 8 Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 5:**

Risk further teaches the final set of factors are associated with mutually independent random variables. (See Page 8 Paragraph 2)

**Regarding Claim 6:**

Risk further teaches the final set of factors correspond to mutually uncorrelated series of numbers, respectively corresponding to series of samples of the mutually independent random variables. (See Page 8 Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 7:**

Risk further teaches a first one of the sets of financial data comprises a plurality of index return series, each index return series comprising a plurality of historical prices of a financial index. (See Section I. First Paragraph and Page 8 Paragraph 2)

**Regarding Claim 8:**

Risk further teaches the variation information for the first one of the sets of financial data comprises a set of mutually uncorrelated return series. Page 8 Paragraph 2)

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**Regarding Claim 9:**

Risk further teaches determining the variation information for the first one of the sets of financial data comprises:

calculating a first covariance matrix based on the plurality of index return series;

(See Page 8 Paragraph 1)

calculating a first set of eigenvectors and corresponding first set of eigenvalues for the first covariance matrix; (See Page 8 Paragraph 1 and 2)

selecting a subset of the first set of eigenvectors, based on the corresponding first set of eigenvalues; (See Page 8 Paragraph 2)

determining the set of mutually uncorrelated return series based on the subset of the set of eigenvectors. (See Page 8 Paragraph 2)

**Regarding Claim 10:**

Risk further teaches determining the final set of factors comprises:

calculating a second covariance matrix based on an aggregate set of return series which includes the set of mutually uncorrelated return series;(See Page 8)

calculating a second set of eigenvectors for the second covariance matrix; (See Page 8)

determining the final set of factors based on the second set of eigenvectors. (See Page 8 Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 11:**

Risk teaches an article of manufacture having computer-readable program portions embodied therein, the article comprising instruction for causing a processor to:

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receive asset classes with corresponding sets of financial data; (See Section I.

First Paragraph)

determine variation information for the sets of financial data; (See Page 8

Paragraph 2)

determine a final set of factors based on the variation information. (See Page 8

Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 12.**

A system for managing an investment portfolio comprising:

a factor module configured to receive asset classes with corresponding sets of financial data; (See Section I. First Paragraph)

determine variation information for each of the sets of financial data; (See Section I. First Paragraph)

determine a final set of factors based on the variation information. (See Page 8 Last Paragraph- Page 9 First Paragraph)

**Regarding Claim 13:**

The system of claim 12 further comprising an analyzer module configured to determine risk associated with a portfolio of one or more assets using information derived from the final set of factors. (See Page 9 First Paragraph)

**Regarding Claim 14:**

The system of claim 13 further comprising a rebalancer module configured to determine a rebalanced portfolio based on risk associated with a risk target, wherein the risk associated with the rebalanced portfolio is closer to the risk associated with the risk



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target than the risk associated with the portfolio is close to the risk associated with the risk target. (See Page 9 Paragraph 2)

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Vezeris whose telephone number is 571-270-1580. The examiner can normally be reached on Monday-alt. Fridays 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dixon can be reached on 571-272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
NAEEM HAQ  
PRIMARY EXAMINER

/James A Vezeris/  
Examiner, Art Unit 4172

October 23, 2007